

Listing of Claims:

- 1-11. (canceled)
12. (original) A solder joint for a semiconductor apparatus assembly, wherein the assembly has at least one copper connection site, the solder joint comprising:
- a nickel layer on at least one copper connection site;
 - a copper layer atop the at least one nickel layer; and
 - a solder ball coupled to the copper layer forming a bond.
13. (original) A solder joint according to claim 12 wherein the bond comprises Cu_6Sn_5 .
14. (original) A solder joint according to claim 12 wherein the nickel layer comprises nickel having a thickness of greater than about 1 micron.
15. (original) A solder joint according to claim 12 wherein the nickel layer comprises nickel having a thickness of less than about 5 microns.
16. (original) A solder joint according to claim 12 wherein the nickel layer comprises nickel having a thickness within a range of between approximately 1 micron and approximately 5 microns.
17. (original) A solder joint according to claim 12 wherein the copper layer comprises copper having a thickness of greater than about 0.6 micron.
18. (original) A solder joint according to claim 12 wherein the copper layer comprises copper having a thickness of less than about 6 microns.
19. (original) A solder joint according to claim 12 wherein the copper layer comprises copper having a thickness within a range of between approximately 0.6 micron and approximately 6 microns.

20. (original) A BGA comprising:
- a board having a plurality of metallized connection sites;
 - a nickel layer on a plurality of the metallized connection sites;
 - a copper layer atop a plurality of the nickel layers; and
 - a solder ball coupled to the copper layer forming a bond.
21. (original) A BGA according to claim 20 wherein the bond comprises Cu_6Sn_5 .
22. (original) A BGA according to claim 20 wherein the nickel layer comprises nickel having a thickness of greater than about 1 micron.
23. (original) A BGA according to claim 20 wherein the nickel layer comprises nickel having a thickness of less than about 5 microns.
24. (original) A BGA according to claim 20 wherein the nickel layer comprises nickel having a thickness within a range of between approximately 1 micron and approximately 5 microns.
25. (original) A BGA according to claim 20 wherein the copper layer comprises copper having a thickness of greater than about 0.6 micron.
26. (original) A BGA according to claim 20 wherein the copper layer comprises copper having a thickness of less than about 6 microns.
27. (original) A BGA according to claim 20 wherein the copper layer comprises copper having a thickness within a range of between approximately 0.6 micron and approximately 6 microns.